BibleCard: A Computer Program that Provides Essential Information About Laboratory Tests

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Misinformation regarding laboratory tests inevitably leads to wasted resources and compromised patient care. Mistakes occur because laboratory tests differ with respect to many requirements such as allowable specimen types, specimen containers, volume of specimen required, special handling requirements, and turnaround times. Where can a health professional go to rapidly obtain the essential laboratory information they need?

We have developed a computer program, called BibleCard, which provides several essential pieces of information for each of the laboratory tests offered at our large university-based clinical pathology laboratory. The program is designed for use by health care professionals involved in laboratory testing including doctors, nurses, medical students, floor clerks, and laboratory technologists.

Within our department, BibleCard is in heavy use. The members of the phlebotomy section use the program frequently to obtain information regarding specimen containers and handling requirements. The laboratory technicians working in our specimen processing area use BibleCard to answer inquiries about laboratory tests coming from other health care providers in the hospital and community. The most common questions concern specimen containers, frequency of test performance, and stat availability. In addition, the program is used to help guide send-out tests to their proper destination, and to help with special specimen processing requirements.

The original version of BibleCard was developed to run on our laboratory computer system as an aid to the laboratory staff fielding inquiries from the patient care areas. This version is a text-based MUMPS program running on a Digital Equipment Corporation VAX 4000. The information is formatted for display on VT-220 terminals or equivalents. To provide better access to patient data, we deployed terminals that were connected to the laboratory system in patient care areas. In addition to laboratory results, the nursing and house staff were given direct access to BibleCard.

Our medical center has begun the evolution into a networked communication environment. This has provided the opportunity to transform BibleCard to operate under the X window protocol. This second, newer version of BibleCard currently runs on a Sun Sparcstation IPX. The program was written for the X window environment using Motif, a library of C routines designed to facilitate the development of X window applications. Whereas the original program was keyboard bound, this new version can be completely driven with a mouse. Health care providers will be able to interact with the program from X terminals that are being placed throughout the hospital.

The basic test definition information contained in the two versions of BibleCard is essentially the same. However, there is a distinct advantage in the X implementation in that it offers a common access point to additional laboratory information that may be contained in other databases. This has allowed us to incorporate information that had been in use for other departmental functions within our networked environment.

The X window version starts with a search dialog box. The user either types in the test of interest or chooses it from a scrolling list with the mouse. As the user is typing, the list box scrolls to and highlights the entries that correspond to the text that has been entered. Thus, just by typing "POT", the patient will be able to see and select the entry "POTASSIUM". In addition, cross referencing allows information about potassium to be accessed by typing or scrolling to "K".

Selection of a laboratory test with the mouse, brings up a screen that contains a variety of information about the test including specimen type (e.g., blood), specimen container (e.g., red top tube), specimen volume, collection procedure (e.g., 24 hour urine collection over acid), specimen handling (e.g., on ice), frequency of test performance, availability of stat testing, specimen processing (e.g., centrifuge and store in refrigerator), reference values, etc. Using simple screen buttons, the user can also gain access to more specific information from our laboratory procedure manuals as well as additional databases, such as the American Association for Clinical Chemistry database on drug or disease interactions with laboratory tests.

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